State of New Jersey

James E. McGreevey
Governor

Department of Environmental Protection

Bradley M. Campbell
Commissioner

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
NO. 7001 1940 0002 4793 7347

Christopher Anderson
Director Environmental Affairs
L.E. Carpenter and Company
33587 Walker Road
Avon Lake, OH 44012

JUL 26 2002

RE: L.E. Carpenter Superfund Site
Wharton, Morris County, New Jersey

Dear Mr. Anderson:

The New Jersey Department of Environmental Protection (NJDEP or Department) and the Environmental Protection Agency (EPA) have completed a review of the report titled Nature and Extent of Lead in Soils and Groundwater dated March 14, 2002, as well as, the report titled Findings & Recommendations Regarding a Conceptual Free-Product Remediation Strategy also dated March 14, 2002. These documents were prepared by RMT, Inc. on behalf of L.E. Carpenter and Company (LE). The NJDEP and EPA have the following comments and request that they be addressed within ninety (60) calendar days from receipt of this letter.

General Comments:

LE should be aware that in general, NJDEP/EPA concur with the findings and recommendations in the Free Product Remedial Strategy report, and that the delineation of lead contamination in soils above 600 ppm has been adequately defined in the Nature and Extent of Lead in Soils and Groundwater report. In addition the information contained in the Nature and Extent of Lead in Soils and Groundwater report presents a defensible remediation cleanup goal for remediating lead contamination above the 600 ppm from a human health perspective for an industrial/commercial, non-residential scenario, as outlined in the ROD and toward this purpose, it appears that the extent and nature of lead at the site has now been adequately determined in the report. However, it appears that LE may no longer be considering the future use of the site to be industrial/commercial and non-residential, but rather some combination of mixed municipal usage possibly involving a new municipal building, roadway and attendant parking lot as well as a play area or park. Therefore, page 30, which states "The LE Carpenter facility is an industrial site and will likely remain an industrial site in the future" no longer appears to be valid, and the data and calculations contained in the risk assessment therein, which refer to a lead cleanup level of 600 ppm, may not be protective considering these possible site uses. Therefore, the risk assessment needs to be revised to reflect any projected future uses of the site to be included in a Focused Feasibility Study (FFS), and should conform to RAGS guidance. The FFS should model specific proposed remedial options for projected risks associated with contamination present at the site and projected future site use.

Also, any potential ecological impacts must be addressed, and an ecological risk assessment must be conducted for this site. The most recent work plans had recommended and outlined that an ecological risk assessment was an objective (Nature and Extent of Lead in Soils and Groundwater, pg. 7), however there were no further discussions. This is based on results that indicated elevated lead concentrations have been detected in the drainage ditch adjacent to the site and the Rockaway River. The FFS must also address the potential for migration of site lead and LNAPL contaminants, that might occur during design and construction phases of work, as well as the possible compromise of any remedial cap technology that is being considered as part of the proposed remedial action, so as to be protective of human health and the

environment. Since the site is in the flood plain of the Rockaway River, compromise of a cap could occur through normal flooding events. Additionally, a determination should be made as to whether the adjacent wetlands have been or will potentially be impacted. Since an ecological risk assessment was not included in this evaluation, it should be submitted separately or as part of the basis of the proposed FFS.

In the FFS, the preference for off-site disposal that is detailed in the current ROD must be shown to be outweighed by other factors in order to justify changing the selected remedy. The FFS should include detailed cost estimates for disposal, as well as capping and long term monitoring and maintenance of the site. In addition, it is anticipated that deed restrictions will be needed. These considerations must be sufficiently evaluated in the FFS. Further, note that if lead contaminated soils are left in place and capped, to ensure that the revised remedy remains protective, this remedial alternative will also require long term monitoring for lead in site groundwater, at appropriately selected sampling points, including between the Rockaway River and at an appropriate groundwater discharge point to the Rockaway River.

The Nature and Extent of Lead in Soils and Groundwater report proposes a change in remedy from excavation and off-site disposal of lead contaminated soils, to excavation, with some soils disposed of off-site and others replaced on-site, and capping of the soils which remain on-site. While NJDEP/EPA concur with excavation especially in conjunction with addressing the free product issue, clarification is necessary regarding the backfilling of lead contaminated soils, in light of the potential new uses. As mentioned above, this would have to be evaluated in the FFS.

In order to comply with federal wetlands ARARs, a wetlands assessment and restoration plan would be needed for any wetlands impacted or disturbed by contamination and/or remedial activities. Management practices outlined as per Federal Register, Volume 51, No. 219, Part 330.6, should be implemented. In addition, as sections of the site may fall within the 100-year and 500-year flood plain as determined by FEMA, the 100-year and 500-year flood plains must be determined, evaluated and assessed. Elevated water levels from 100 and 500 year events may negatively impact the site. The migration of lead, LNAPL contaminants, or compromise of the remedial cap must be considered as part of any proposed remedial action, as mentioned above, so as to be protective of human health and the environment.

It should also be noted that all soils and process wastes, including those which are currently suggested for off-site disposal need to be screened and removed based on sampling results. NJDEP/EPA cannot concur with the removal of soils based solely on color, as suggested in the Nature and Extent of Lead in Soils and Groundwater Report.

Specific Comments (NJDEP) – Nature and Extent of Lead in Soils and Ground Water

1. Section 1.1.2, Site History – Lead Investigation, page 5. The report states that the fate of soils excavated from the hotspots (B, C and D) cannot be documented by LE. LE must verify the status and disposition of the hotspot soils from the 1995 soil excavation as it was NJDEP's understanding that the soils were stockpiled adjacent to the former Building 14.

2. Section 1.2, page 7. The determination of whether further ecological risk assessments are required is a stated goal. However, it is not apparent that this goal was achieved, since ecological concerns were not addressed in this document. NJDEP recommends that a Screening Level Risk Assessment (SLRA) be performed, pursuant to Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments, EPA 540-R-97-006, Office of Solid Waste and Emergency Response. Washington, D.C., June 1997. The conclusions should be revised to identify the lack of a SLRA as a data gap.

3. Section 3.1, Lateral Extent of Lead in Soil, page 16. One of the designated sample points on Figure 2, GPC-15A, is depicted as a recent (RMT, 2001) test pit location from the November, 2001 RMT investigation. The lead concentration from this sample point (surface interval) is reported as 6792 ppm. LE must confirm the sample designation, since the GPC designation would indicate a 1999 soil-boring sample. The report also states that some of the data from the previous reports may be inaccurate because of changes in the ground surface as a result of excavation or soil removal activity.

Any of the sample locations shown on Figure 2 that may denote "uncertain or questionable" data points must be footnoted as such.

4. Section 3.2, Vertical Extent of Lead, page 18. The report describes a 2-foot thick seam of process waste at a depth of 5 feet below grade in test pit SS-17. LE must report on the horizontal extent of the waste and the approximate volume of waste. In addition, it is stated that all of the excavated process waste was isolated and placed into a drum. LE must report whether post-excavation samples were collected.

5. Section 4.0, Focused Human Health Risk Assessment, page 28. While the NJDEP Non-Residential Direct Contact Soil Cleanup Criteria (NRDCSCC) of 600 ppm for lead is conservative, the criteria is derived from a model that was designated to be protective of adults in the workplace. The site specific risk based remediation goal of 902 mg/kg developed for the LE site is not considered by NJDEP to be protective of human health in an industrial/commercial future use scenario. NJDEP would allow lead levels above the 600 ppm NRDCSCC provided appropriate engineering and institutional controls are proposed for this site. NJDEP remains concerned that elevated lead levels may remain in environmentally sensitive areas (ESA's) outside of the footprint of the proposed remediation. The 600 ppm level is human health based and is not appropriate for use in ESA's, 600 ppm lead exceeds ecologically based sediment and soil screening criteria. Lead levels that will remain in ESA's must be clearly identified and must be evaluated for protectiveness of ecological receptors.

6. Figure 2 should be revised to depict any wetlands or mudflats associated with the river, lake or drainage ditch, and should include data from these areas (i.e. sediment data are available from the Final Supplemental Remedial Investigation Addendum, September 1992). Data gaps relating to these areas as well as the aforementioned water bodies must be identified.

Specific Comments (EPA) – Nature and Extent of Lead in Soils and Ground Water:

1. Executive Summary - Based on the data presented and referenced in the report, it is unclear if an adequate aqueous and solid phase geochemistry characterization was conducted at the site. The groundwater sampling program included standard pH and Eh measurements but such measurements are often not sufficient and need to be interpreted within the context of additional geochemical and biochemical data. Typically, numerous aqueous and solid state redox measurement parameters must be known to assure that the lead contamination is non-mobile and poses no risk to groundwater and surface water. This data is needed to confirm if the negative synthetic precipitation leaching procedure (SPLP) test results and the detection of limited groundwater contamination are sufficient evidence of no significant leaching from the lead contaminated soils. This can be presented and evaluated in the FFS.

   Any change in the following redox parameters in the soils and aquifer, such as Eh, dissolved oxygen, total dissolved carbon, speciation of iron sulfur or nitrogen, etc., could influence the potential concentrations and the migration of lead and LNAPLs into and within the groundwater. This data is necessary since the reactivity, solubility, and mobility of various lead compounds depend on redox conditions. Numerous metals, including lead, can potentially form ionic complexes and solid precipitates with redox sensitive elements. Organic contaminants in the groundwater are also influenced by redox conditions especially through the metabolic activity of microorganisms. Many of the detected chlorinated solvents including ethyl benzene and DEHP are more biodegradable under reducing conditions. Therefore obtaining adequate site data on the redox processes is an important part of the FFS and risk assessment and for making a determination of a feasible remediation strategy.

2. More information is needed on the groundwater elevations within the entire impacted contaminated area and extending to the river. Water table maps and a detailed horizontal and vertical groundwater flow analysis of the upper impacted aquifer should be provided especially between the excavation areas and the river. It is unclear how much of the deeper lead contamination which extends down to 10 feet in depth, lays within the groundwater or surface aquifer (Nature and Extent of Lead in Soils and Groundwater, figure 2). The seasonally high water table is relatively close to the ground surface and

varies between 5 and 15 feet in depth across the site. Sporadic mounding of the groundwater, which occurs during seasonally high watertable levels, was detected east of building 14 near an area of deep lead contaminated soils (see report Section 3.5).

3. The lead cleanup goal is described in the report as "risk-based", however, it is valid for risks associated with human risk, without reference to an analysis of potential ecological risk. The remediation goal for lead (600 ppm) was calculated for an industrial/commercial, non-residential scenario, however this soil cleanup value is not necessarily designed to protect under other site uses or for ecological receptors. It is now noted that the potential exists that the proposed future use of the site could include a new municipal township building and possibly some sort of a park. Therefore, areas of lead soil contamination with less than 600 ppm will need to be reevaluated as a potential threat to human or ecological receptors at the site. It is possible that either capping or removal of only those soils exceeding 600 ppm lead may not be protective; therefore, further justification needs to be provided in the FFS to formally address all potential projected future site uses.

4. For the ecological risk assessment, any contamination in the wetlands adjacent to and downstream of the site needs to be characterized. If this was conducted as part of a previous surface water and/or sediment study, the results should be summarized in the subject documents. The appropriate guidance that should be consulted covers a Screening-Level Ecological Risk Assessment (SLERA), as well as full blown Ecological Risk Assessment, in accordance with current Superfund ecological risk assessment guidance (Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments [ERAGS], USEPA, 1997 [EPA/540-R-97-006]).

5. Results indicate that the process waste located within the two-foot zone in test pit SS-17 tested hazardous for cadmium as well as lead. As this is a new source with which additional metals are possibly associated, the material needs to be sampled for a full metals suite for adequate characterization and disposition. Impacts to groundwater for cadmium and any other metals identified need to be considered. Post excavation sampling should include all other metals present at and above levels of concern. If historical groundwater results are available for cadmium (and any other metals identified), they should be reviewed and re-presented in the text within the context of the new information. If adequate groundwater samples do not exist, they will need to be collected, either as part of this evaluation, or separately, to serve as a basis of the FFS.

6. TCLP results need to be summarized in a table, which shows the criteria against which the data are screened. A quick review of the results in the appendix shows that other contaminants were also detected and this data needs to be evaluated and discussed. A summary table would be helpful to aid in this effort.

7. SPLP tests included results for copper. The results for copper as well as for any other metals run during SLPL testing should also be tabulated. In the area where copper was detected, samples for a full suite of metals should also be collected and analyzed. A clean up goal for copper should be established for the relevant area and analyses should be included in post excavation sampling. These items should be included in the FFS.

8. Field parameters collected during the groundwater sampling should be compiled and presented in a table.

9. Well WP-A2 was noted to be broken. A description of what is wrong with the well should be included and the well should either be rehabilitated or abandoned and properly sealed.

10. The sample identified as SS-47 was found to contain 25,056 mg/kg of copper. Some description of how and where this analysis was made needs to be clearly included and referenced in the text. If other parameters were run as part of this analysis, that data should also be included. LE should note that the area around this point appears to have been only visually delineated. Remedial action and post excavation sampling must target a specific concentration.

11. The sample identified as WDA-PES-6 appears to be a post excavation sample, indicating that lead contamination remains in this location. It should be included in the remedial action effort and FFS.

12. In discussing the lead isotope work, please expand the discussion of the 208/204 isotopic ratios. The text should present the values, as well as provide references and explanations of why the differences in the values are significant.

13. Page 7, Section 1.2 - One of the project objectives that is identified is to determine if any further ecological risk assessments are necessary. However, the four principle tasks that are included below the project objectives do not include any ecological assessment tasks. Additionally, there is neither a discussion of ecological assessment, nor any conclusions regarding ecological concerns. Although a soil cleanup criterion was calculated for human exposure, consideration of a soil cleanup criterion from an ecological perspective has not been presented. As runoff from the site into the Rockaway River may be a potential contaminant transport pathway, ecological concerns need to be addressed.

14. Page 10, Second full paragraph - It is indicated that the calibration consisted of performing an analysis on three standard samples. The high and medium lead standards are reported as approximately 5,600 ppm and 1,150 ppm, respectively, and the low lead standard is identified as being less than 20 ppm. The concentration of a standard is generally known as a specific value based on analysis of the standard, thus identifying it as a standard that can be used to reliably calibrate an instrument. Standard concentrations are not generally reported as approximately or less than. LE should clarify these issues.

15. Page 11, Section 2.2 Test Pit Excavation and Sampling Methodology - In the third paragraph it is reported that the intermediate sample was collected after the pit had been backfilled to a depth of 3 feet below ground surface. In the next paragraph (page 12) it is reported that samples were not composited, nor were samples collected in a manner that may mix distinct layers identified within the pit. These statements appear to be contradictory as the method for excavating and backfilling was using a backhoe. Based on the photographs included in Appendix A, it appears as though the excavated soil was placed in a pile next to the pit and then the pile was placed back into the pit. This methodology would result in the backfilled material potentially consisting of mixed layers from a variety of depths. Therefore, the use of the intermittent samples to delineate the vertical distribution of lead is considered questionable.

16. Page 16, Section 3.1, bulleted section - In the second and third bullet remedial decisions regarding either on-site disposal or off-site disposal are presented using language, such as "will be". This document is to present information on the nature and extent of lead in the soils and groundwater at the site. A more detailed FFS report that discusses the potential remedial options based on the nine criteria presented in the NCP must be presented prior to making any remedial decisions. The discussion should be geared toward those specific criteria that are impacted and/or changed with respect to potentially changing of remedy. Please change the wording that indicates actions "will be" completed to "may be" or similar wording.

    The fourth bullet discusses a previous sample collected during the investigation conducted by WESTON. The last sentence indicates that the inhalation and dermal pathways are not complete due to the depth being at 4.5-5.0 feet below ground surface. This statement may not be accurate depending on the receptor population and activity that is being evaluated, such as a construction worker digging on the site. This sentence should be deleted.

17. Page 18, fourth paragraph - The purpose of this investigation was to determine the extent of lead contamination in the soil and groundwater, however during the investigation the process waste identified on the site was characterized as a hazardous material with respect to both lead and cadmium. Based on this designation, soil cleanup criterion will also need to be derived for cadmium. Groundwater data should also be re-examined to determine if the cadmium in the soil is a source of groundwater contamination.

18. Page 19, Section 3.3 - The leachability results for lead are listed in this section. Upon review of the data associated with the TCLP data for the characterization of the process waste, it appears that other inorganic compounds such as barium, cadmium, chromium, copper, nickel, silver and zinc also had results that were above the detection limit for various sample media. These results should be discussed.

19. Page 19, Section 3.5 - To further evaluate the distinction between the two apparent sources of lead in the soil, a series of non-standard, but analytically sound procedures were used. Please reference these procedures.

20. Page 23, Galena is PbS and is a metallic sulfide mineral. Magnetite is an iron oxide, Fe3O4. "Dover County" should be Morris County (Dover District).

21. Page 24, Crystals of crocoite are often thin needles or prisms.

22. Page 25, Section 3.7.1 - It is reported that high xylene content was found in the areas that contain process waste material. As xylene is a solvent, the leachability of lead in the soil may be altered. Please discuss the potential impacts regarding xylene and the leachability of lead to groundwater in these areas.

23. Page 30, Section 4.2 - The last sentence of the first paragraph indicates that the industrial/commercial worker represents the most likely and conservative human receptor that would be exposed to the site. However, as mentioned in the general comments, the future site use may have changed, therefore, it is no longer necessarily the case that the industrial/commercial worker represents the most likely human receptor at the site. Nor is the industrial/commercial worker the most conservative human receptor that could be present at the site if site conditions were to change. LE must clarify the planned potential future site uses and address accordingly.

24. Page 31, Section 4.3 – It is assumed that the 900 ppm is not presented to propose a new cleanup concentration. There are two references to standards in the concluding paragraph. One reference is to the soil lead standard dictated for the Wharton facility by the State of New Jersey. The second reference is to the blood lead standard set by the OSWER (USEPA 1994). These values are not promulgated cleanup standards. The soil lead value for the State of New Jersey is a criterion and the blood lead value in the TRW approach is a goal.

25. Page 32, Section 5 – Bullet number 7 indicates that the absence of lead in groundwater eliminates a groundwater ingestion pathway from consideration from any risk assessment analyses. Please restate this conclusion to indicate that the groundwater pathway may only be eliminated for lead. Other site-related contaminants that exceed groundwater screening values are retained and considered chemicals of potential concern for the groundwater pathway.

26. Figure 2 – The wetlands associated with the Rockaway River and the Air Products drainage ditch should be identified on Figure 2.

27. Figure 2 – The former waste disposal area is delineated with a dashed gold line, however the legend does not contain a description of the what the dashed gold line represents (i.e., a general area, an delineated contaminant concentration). Please explain what this line delineates.

28. Figure 2 – Based on the distribution of samples it is not clear if the area delineated around SS-41B is a separate isolated area or if it is connected to the larger area around former building 14. There is evidence that the SS- 42, SS-41C and SS-41A data provide a westerly boundary and that SS-37, SS-38, SS-39 and SS-40 data provide a easterly boundary, but there are no samples collected between SS-36 and SS-41B to delineate a southerly boundary. This should be noted.

29. Figure 3 – As discussed in Comment 21, the use of the intermediate sample depths to delineate the vertical extent of contamination is suspect due to the intermediate samples being collected after the test pit was partially filled in with excavated soil.

30. Figure 3 – There are several problems with the legend on Figure 3. The lead concentrations and sample depths (in that order) are presented with each sample location, however the text in the legend is written with the sample depths and then lead concentrations, which does not match the order in which the data is presented. Additionally, the red coloring is identified as denoting areas that contain lead concentrations above 600 mg/kg, however the green coloring is not identified.

Specific Comments (NJDEP) – Findings and Recommendations Regarding a Conceptual Free-Product Remediation Strategy:

1. Section 1, page 1-1. LE estimates about 44,000 gallons of immiscible product existed in the source area, of which almost 3300 gallons have been recovered. LE must provide an estimate of the total volume of immiscible and residual product the proposed excavation/product removal will likely recover.

   Low Temperature Thermal Desorption: The report discusses LTTD as the preferred soil remedial option but then changes to off-site disposal of the soil. The text should be modified to indicate why LTTD is no longer being considered.

2. Section 3, Ground Water and Surface Water During Excavation. Significant volumes of ground water and surface water are expected to enter the excavated areas during the field efforts. However, LE indicates no measures are necessary to control this water nor caving of the excavation. NJDEP recommends that LE reconsider this approach and have an alternate plan ready to complete the excavation should the proposed method fail to deal with the water or soil instability.

3. Section 3.3, Soil Excavation and Handling Limitations, page 3-3. RMT estimates that 50-60% of the soil is a composition of course grain material greater than 3 inches in diameter, which is proposed to be returned directly to the excavated area without undergoing treatment. Significant free product may be associated with this subsurface material, especially if it is up to 65% of the substrate being excavated. Provisions should be made to wash larger soil fractions (cobbles, boulders etc.) before returning to the excavation.

4. Section 3.7, Evaluation of Groundwater Treatment, page 3-5. The report suggests that "excavation methods" that minimize the volume of groundwater from entering the excavation would have to be established, however few details are provided. Large volumes of water infiltration during excavation would have the effect of draining/flushing immiscible product from soil back into the excavation. LE must plan on the potential for some level of dewatering in anticipation of large volumes of ground water entering the excavation.

5. Section 4.4, page 4-3. The report indicates immiscible product is "squeezed" and confined to the central portion of the site by the higher hydraulic heads in the Rockaway River and on the Air Products site. This contradicts the potentiometric maps submitted with each quarterly sampling event. According to these maps, a significant component of ground water flow is from the Rockaway to the drainage ditch separating L.E. Carpenter (LE) from Air Products. Accordingly, product should be found in this ditch, but has not been detected in the surface water sampling efforts. NJDEP requests clarification as to why product is undetected in the ditch, given the potentiometric maps and information supplied by LE.

6. Section 4.5.3, Literature Search on Product Properties, page 4-5. The report states that, "the temperatures involved in in-situ thermal augmentation would be too low to enhance vapor removal of the DEHP from the vadose zone". LE should thoroughly investigate the potential benefits of In-Situ Thermal Desorption, (ISTD) before dismissing this technology. In-situ processes, which either destroy contaminants in place or remove them without disturbing the soil, offer distinct advantages over those

requiring excavation. Several ISTD processes (in which heat and vacuum are applied simultaneously to subsurface soils) can achieve subsurface temperatures greater than 400 degrees C, well above the boiling point of DEHP. Also, an assessment of steam injection should be evaluated, since the presence of NAPL (xylene and ethylbenzene) in groundwater can result in the formation of an azeotropic mixture, effectively reducing the boiling point of DEHP. Section 5.8, page 5-4, Paragraph 2. LE indicates that the Category D soils will be excavated to a depth no greater than two feet below the water table. This contradicts the statement on page 5-3 where the report states excavation will proceed to the historically lowest water table elevation, which may be more than two feet below the water table elevation when excavation begins. LE must excavate to the historically lowest ground water elevation because of product smear.

7. Section 5.9, Backfilling and Site Restoration, page 5-4. LE proposes that the excavated overburden material containing elevated lead levels (Category A and C soils) as well as the ID-27 debris generated from the building demolitions be returned to the excavation as backfill. LE should be aware that NJDEP/EPA concur with the consolidation of the lead contaminated soils on the site provided appropriate engineering and institutional controls are in place. LE should also be aware that NJDEP/EPA cannot approve of the use of these soils as backfill into an excavation down to the water table as NJDEP/EPA is concerned that there is a high potential for lead to leach from soils in contact with ground water. LE should provide clarification regarding this issue.

8. Section 6.2.6, pages 6-4 and 7-2. LE indicates ground water and product emulsion will be captured and sent off-site for disposal. No details are provided as to how this emulsion will be captured. An explanation of the capture method is necessary.

   In addition, LE estimates 4700-9700 gallons of free phase product remain in the Category F Free Product Layer, based on the Free Product Volume Analysis (RMT May 2000). LE also estimates 4700-9700 gallons of free phase product will be recovered by the proposed remedial excavation activities in the Category F zone. However, the most conservative "worst case" calculation indicates up to 5000 gallons of free phase product could be left behind upon completion of the excavation. This volume of product would continue to be a long-term source of dissolved ground water contamination. LE must indicate what remedial measures would be implemented should the excavation/product removal be unsuccessful in removing all (or most) of the free product. If all product will be recovered this must be clarified.

Specific Comments (EPA) – Findings and Recommendations Regarding a Conceptual Free-Product Remediation Strategy:

1. The report indicates that the stumbling block for low temperature thermal desorption (LTTD) is that an air permit can not be obtained (figure 1), however it is not clear why this is the case. While off-site disposal of free product is a potentially viable option, it is not clear from the text why it is the preferred one. This type of evaluation is usually the subject of a Feasibility Study or FFS. LE should note that it is difficult to evaluate the pros and cons of alternative approaches based on unsupported statements. This also holds for text, which refers to costs and difficulty of alternatives without any indication as to what the remedial costs would be.

2. In discussing soil handling, the document suggests that excavated materials greater than 3 inches in diameter could be replaced on site without washing. This is not clearly the case. If cobbles and boulders are coated with contaminants, they must be cleaned prior to replacing them. Handling of the wash water should be evaluated.

3. The proposed approach for the site remediation must be made clear. Specific criteria, which will guide the limits of excavation, must be stated. Firm, concise guidelines as to when it is appropriate to stop digging must be established. The limits shown on Figures 9 and 10 may differ from what is encountered in the field, and are based on a qualitative "probability" of contaminants being present. This is not sufficient to guide an actual remedial excavation strategy. The excavation of Category D soils appears to include draining the product back into soils, which have yet to be excavated. If the

volume of draining product is high, booms may not be effective at containing the flowing material. Methods of collecting the drained product need to be evaluated and discussed in more detail.

4. Geological cross section A-A', Figures 4 and 5 - this cross section incompletely intersects the key site areas of interest and poorly illustrates the extent of the strata and the shallow aquifer under the site. The profile fails to clearly show how far the fill and debris layers, which contain the free product and lead contaminated soils, extend below the maximum Piezometric level or the seasonally high water table. It also appears that some of the deepest hot spots of lead contaminated soils are located off the A-A' axis of the geological cross-section (Nature and Extent of Lead in Soils and Groundwater, figure 2). Besides the surface soil test pit SS-16 several other soil borings including GPC-15A, GPB-2, GPB-10, and GPC-15-15, had lead concentrations (from a depth of 6 to 9 feet) which were many times above the soil screening criteria of 600 ppm. These borings were not illustrated on the geological cross section A-A' (figure 3. Nature and Extent of Lead in Soils and Groundwater). There is also detailed information presented or discussed on the groundwater levels at these specific boring locations that can be represented to better effect on the figures.

   For example, one additional cross section is needed that extends from some location north of point A to a location south of point A'. This additional cross section, if aligned to intersect some of the soil borings with deeper high lead detection's and high and low water elevations and the prevailing groundwater flow direction, would better illustrate the heterogeneity in the debris, fill and sandy and silty gravel layers and the potential variations in the groundwater levels across the site.

Should you have any questions or wish to schedule a meeting to discuss this matter contact me at (609) 633-1416.

Sincerely,

Anthony Cinque, Case Manager
Bureau of Case Management

C: Nick Clevett, RMT, Inc.
Stephen Cipot, EPA
George Blyskun, BGWPA
John Prendergast, BEERA